

WHAT IS CLAIMED IS:

1. A method of diagnosing skin cancer in a patient comprising:  
providing a tissue sample from a patient suspected of having skin cancer; and  
determining whether cells in said tissue sample express MrgX2, wherein  
expression of MrgX2 indicates that the patient has skin cancer.
2. The method of Claim 1, wherein the skin cancer is melanoma.
3. The method of Claim 1, wherein the tissue sample comprises skin cells.
4. The method of Claim 1, wherein MrgX2 expression is determined by  
contacting the tissue sample with an antibody that specifically binds MrgX2 and determining  
if the antibody binds to the tissue sample.
5. The method of Claim 4, wherein the antibody is a monoclonal antibody.
6. The method of Claim 4, wherein the antibody is detectably labeled.
7. The method of Claim 6, wherein the antibody is labeled with a radioactive  
label.
8. The method of Claim 6, wherein the antibody is labeled with a fluorescent  
label.
9. The method of Claim 1, wherein MrgX2 expression is determined by  
contacting the sample with a nucleic acid probe that is complementary to a portion of the  
MrgX2 nucleic acid of SEQ ID NO: 3 and determining if the probe binds to the tissue  
sample.
10. The method of Claim 9, wherein the probe is detectably labeled.
11. The method of Claim 1, wherein said MrgX2 has the amino acid sequence of  
SEQ ID NO: 4
12. A method of diagnosing melanoma in a patient comprising:  
obtaining a tissue sample from the patient;  
preparing RNA from the tissue sample;  
contacting the RNA with a nucleotide probe that is capable of hybridizing to  
the MrgX2 nucleotide sequence of SEQ ID NO: 3 under stringent conditions; and  
determining binding of the nucleotide probe to RNA in the sample.

13. The method of Claim 12, wherein the nucleotide probe is detectably labeled.
14. The method of Claim 12, wherein the RNA is mRNA.
15. The method of Claim 12, wherein the RNA is total RNA.
16. The method of Claim 12, wherein said tissue sample comprises skin cells.
17. A method of diagnosing melanoma in a patient comprising:
  - obtaining a tissue sample from the patient;
  - isolating protein from the tissue sample;
  - contacting the protein with an antibody to MrgX2; and
  - determining binding of the antibody to the protein, wherein specific binding of said antibody to the protein is indicative of melanoma.
18. The method of Claim 17, wherein the antibody is a monoclonal antibody.
19. The method of Claim 17, wherein the antibody is detectably labeled.
20. The method of Claim 17, wherein the isolated protein is separated by size prior to being contacted with the antibody to MrgX2.
21. The method of Claim 17, wherein the isolated protein is immobilized on a membrane prior to being contacted with the antibody to MrgX2.
22. The method of Claim 17, wherein the tissue sample comprises skin cells.